



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,654	12/05/2003	Michael E. Seitz	MTC 6634.1(40-21(3584)US)	8454
321	7590	02/21/2008	EXAMINER	
SENNIGER POWERS LLP ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			FRAZIER, BARBARA S	
			ART UNIT	PAPER NUMBER
			1611	
			NOTIFICATION DATE	DELIVERY MODE
			02/21/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

Office Action Summary	Application No. 10/728,654	Applicant(s) SEITZ ET AL.	
	Examiner BARBARA FRAZIER	Art Unit 1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-93 is/are pending in the application.
- 4a) Of the above claim(s) 6-8, 13-16, 37-39, 44-47 and 70-93 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-12, 17-36 and 48-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :3/5/04,6/3/04,9/13/05,9/28/05,3/8/06,9/15/06,9/27/07.

DETAILED ACTION

1. Applicant's election of Group I, claims 1-69 in the reply filed on 5/11/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 70-93 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 5/11/07.

3. Applicant's election of the species wherein A) the polyisocyanate is the biuret-containing adduct of hexamethylene-1,6-diisocyanate, B) the principal amine is triethylenetetramine, C) the auxiliary amine is polyoxypropylenetriamine, and D) the pesticide is alachlor, in the reply filed on 1/10/08 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

4. Claims 6-8, 13-16, 37-39, and 44-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/10/08.

5. Claims 1-5, 9-12, 17-36, 40-43, and 48-69 are examined.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1611

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 states that the “pesticide” may be a “herbicide safener”. However, the terms “pesticide” and “herbicide safener” appear to be incongruous, since the generally accepted definition for “pesticide” is “a chemical preparation for destroying plant, fungal, or animal pests”, while a “safener” is defined as “a chemical added to a pesticide to keep it from injuring plants”. It appears that Applicants are referring to the “pesticide material” containing a herbicide and its corresponding safener (see page 27, lines 6-8 of the specification). Examiner suggests amending the claim to read “pesticidal material” instead of “pesticide” in line 2 of the claim.

8. Claim 54 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 54 states that the “pesticide” may be a “herbicide safener”. However, the terms “pesticide” and “herbicide safener” appear to be incongruous, since the generally accepted definition for “pesticide” is “a chemical preparation for destroying plant, fungal, or animal pests”, while a “safener” is generally defined as “a chemical added to a pesticide to keep it from injuring plants”. It appears that Applicants are referring to the “core material” containing a herbicide and its corresponding safener (see page 27, lines 6-8 of the specification).

Art Unit: 1611

9. Claims 26 and 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 26 and 57 are vague and indefinite in that the metes and bounds of the phrase “wherein the pesticide further comprises a safener” are unclear. Does the phrase mean that a safener is present in addition to the “pesticide” of claim 23, or does the phrase mean that the safener is the pesticide itself?

10. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 is vague and indefinite in that there is no clear prior antecedent basis for the term “the microcapsule”. Claim 31, lines 1-2 reads, “as set forth in claim 1 wherein the microcapsule has a mass to volume ratio”, but no “microcapsule” is found in claim 1.

11. Claim 63 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “contopus” (lines 2 and 3) is unfamiliar to the Examiner. This appears to be a typographical error of the viscosity unit “centipoise” (see page 27, line 34 of the specification). Examiner suggests amending the claim to read “centipoise”.

Specification

The disclosure is objected to because of the following informalities: the term “contopus” (page 27, lines 34 and 35; page 33, line 28; page 34, line 6; and page 40, lines 15 and 16) is unfamiliar to the Examiner. This appears to be a typographical error of the viscosity unit “centipoise” (see page 27, line 34 of the specification). Examiner suggests amending the specification by replacing the term “contopus” with “centipoise” at each occurrence.

Claim Objections

12. Claim 32 is objected to because of the following informalities: Lines 1 and 2 of claim 32 read, “a dispersion of microcapsules in an aqueous phase, a microcapsule comprising.” Although the instant claim is not rejected under 112, 2nd paragraph, Examiner suggests amending the claim to read, “a dispersion of microcapsules in an aqueous phase, said microcapsule comprising” for the purpose of further clarifying the claim.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

Art Unit: 1611

ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5, 9-12, 17-25, 27-36, 40-43, and 48-69 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 129 and 131-153 of copending Application No. 11/113,857. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are drawn to the same subject matter and composition components.

The claimed invention is drawn to a pesticidal material according to claim 1:

1. A pesticidal material comprising a substantially water-immiscible core material, the core material comprising a pesticide and being encapsulated in a shell having a predetermined permeability with respect to the core material, wherein the shell is formed by an interfacial polymerization of a polyisocyanate with other monomers in an encapsulation shell-forming polymerization system, said other monomers comprising a principal amine and an auxiliary amine.

and an agricultural formulation according to claim 32:

32. An agricultural formulation comprising a dispersion of microcapsules in an aqueous phase, a microcapsule comprising a substantially water-immiscible core material, the core material comprising a pesticide and being encapsulated in a shell having a predetermined permeability with respect to the core material, wherein the shell is formed by an interfacial polymerization of a polyisocyanate with other monomers in an encapsulation shell-forming polymerization system, said other monomers comprising a principal amine and an auxiliary amine.

Art Unit: 1611

In the elected species of the claimed invention, the pesticide is alachlor, the polyisocyanate is the biuret-containing adduct of hexamethylene-1,6-diisocyanate, and the principal amine and auxiliary amine are triethylenetetramine and polyoxypropylenetriamine, respectively.

Copending application '857 teaches an agriculturally active microcapsule comprising an organic core material encapsulated in a shell having a pre-selected release rate, wherein the shell is formed by interfacial polymerization of a polyisocyanate with a first and second polyamine.

The '857 application differs from the instant application because it does not specifically state that the shell has a predetermined permeability (see claim 1).

However, the '857 application does teach that the ratio of the first and second polyamine is selected and controlled to release the agricultural active from the microcapsule at the pre-selected rate (see claim 129), and therefore would impart a predetermined permeability to the microcapsules and the corresponding agricultural formulation.

With respect to the elected species, the '857 application teaches that the core (agriculturally active) material is alachlor (claims 140 and 152), the first and second polyamines are chosen among triethylenetetramine and trimethylolpropane tris[poly(propylene glycol) amine terminated] ether (i.e., polyoxypropylene triamine) (claim 145) and the polyisocyanate is an "aliphatic polyisocyanate" (claim 143). The definition of "aliphatic polyisocyanate" in the '857 application includes Desmodur N3200 (page 46, paragraph 292), which is Applicant's elected polyisocyanate (see page 18, line 27 of the instant specification).

With respect to the properties of being non-porous (claims 21 and 52), the microcapsule of the '857 application is non-porous (claim 138).

Art Unit: 1611

With respect to the dependent limitations of permeability, solubility, weight ratios, and size, said properties would be present in the microcapsule and formulations of the '857 application based on the weight ratios and sizes listed in the claims of the '857 application (e.g., see claims 135-137), as well as the fact that the microcapsule of the '857 application comprises the same core material and shell as the pesticidal material of the instant application, for reasons stated above.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claims 1-5, 9-12, 17-23, 27-36, 40-43, 48-54, and 58-69 are rejected under 35 U.S.C. 102(e) as being anticipated by Asrar et al., US Patent 6,992,047.

The claimed invention is drawn to a pesticidal material as described in claim 1:

Art Unit: 1611

1. A pesticidal material comprising a substantially water-immiscible core material, the core material comprising a pesticide and being encapsulated in a shell having a predetermined permeability with respect to the core material, wherein the shell is formed by an interfacial polymerization of a polyisocyanate with other monomers in an encapsulation shell-forming polymerization system, said other monomers comprising a principal amine and an auxiliary amine.

and an agricultural formulation comprising a dispersion of microcapsules (which comprise the pesticidal material) in an aqueous phase (see claim 32).

Asrar et al. teach pesticidal materials comprising microcapsules formed by the interfacial polymerization of a polyisocyanate with one or more polyamines (claims 1 and 19-20); the microcapsule shell formed by the interfacial polymerization of the aliphatic polyisocyanate Desmodur 3200 (triisocyanate based on hexamethylene diisocyanate), triethylene tetramine, and trimethylolpropane tris[poly(propylene glycol)amine terminated] ether (Jeffamine T-403, i.e., polyoxypropylene triamine) is exemplified (see Examples 1-9 and 15-17). The microcapsule is further used in an aqueous formulation (see Example 18). Asrar et al. also teach that the core material comprises a first agricultural active having low water solubility (claim 1). The resultant microcapsule of Asrar et al. would have a predetermined permeability, given that the microcapsule shell of Asrar et al. is the same as the shell of the claimed invention. Therefore, the invention of Asrar et al. anticipates the claimed invention.

With respect to claims 2 and 33, the polyamines of Asrar et al. described above are not hydrolysis products of the polyisocyanate.

Art Unit: 1611

With respect to claims 3-5, and 34-36, the properties of predetermined and greater permeabilities would be present in the microcapsule and formulations of Asrar et al., given the fact that the microcapsule shell of Asrar et al. is the same as that of the claimed invention.

With respect to claims 9, 22, 40, and 53, the properties relating to solubility would be present in the microcapsule and formulations of Asrar et al., given the fact that the microcapsule shell of Asrar et al. is the same as that of the claimed invention.

With respect to claims 10-12, 17-18, 41-43, and 48-49, Asrar et al. teach the use of Jeffamine T-403 (i.e., polyoxypropylene triamine) with triethylene tetramine as the polyamines used (see Examples 1-9 and 15-17).

With respect to claims 19, 20, 50, and 51, Asrar et al. teach that Desmodur N3200, an aliphatic polyisocyanate (triisocyanate) based on hexamethylene diisocyanate, is used as the polyisocyanate (see Example 1 and following Examples). Applicant's specification teaches that Desmodur N3200 is a biuret-containing adduct of 1,6-hexamethylene diisocyanate (see page 18, lines 25-27 of Applicant's specification).

With respect to claims 21 and 52, the property of being "substantially non-porous" would be present in the shell of Asrar et al., given the fact that the shell of Asrar et al. is the same as the shell of the claimed invention.

With respect to claims 23 and 54, Asrar et al. teach that the agricultural active (i.e, core material) has "fungicidal and other applications" (col. 3, lines 40-53).

With respect to claims 27-29 and 58-60, Asrar et al. teach that an organic solvent may be present in the core material, which would act as a diluent; the solvent may be chosen from different amounts, boiling points, and/or classes of compounds (see col. 20, line 57 - col. 21, line

Art Unit: 1611

46). The properties of adjusted solubility would be present in the microcapsule and formulation depending on the choice of solvent from the list disclosed in Asrar et al.

With respect to claims 30 and 61, a weight ratio of shell: agricultural active from about 15:100 to about 30:100 is "particularly useful" (col. 27, lines 56-65). This amount is encompassed by Applicant's amount of less than about 33%.

With respect to claim 63, the property of the viscosity of the dispersion of Asrar et al. would necessarily be encompassed by the viscosity ranges of the formulation of the claimed invention, given the fact that the size and weight of the shell of Asrar et al. are encompassed within the size and weight ranges of the claimed invention.

With respect to claim 64, Asrar et al. teach that the "particularly useful form" of the microcapsule includes a microcapsule having an average size of from about 2 microns to about 8 microns (col. 27, lines 59-62).

With respect to claims 31, 62, 65, and 68, Asrar et al. teach the microcapsule may have a weight ratio of shell:core material from about 15:100 to about 30:100, and an average size of from about 2 microns to about 8 microns (col. 27, lines 57-62). Based on these measurements, the microcapsule would have a mass to volume ratio and a volumetric diameter distribution within the measurements of the claimed invention.

With respect to claim 66, Asrar et al. teach that 0.2 ml of microcapsules is placed in 0.8 ml of water to form an agricultural formulation (see Example 18). Based on these amounts, the formulation would comprise less than about 65 weight percent microcapsules, according to the claimed invention.

Art Unit: 1611

With respect to claim 67, Asrar et al. teach that a compound which acts a melting point depressant is present (col. 23, lines 46-48); this compound would therefore be an “antifreeze agent”.

With respect to claim 69, Asrar et al. teach that the microcapsules may be applied to wheat seed in the fall and provide protection throughout the spring, thus saving at least one and perhaps two conventional field applications of a pesticide (col. 9, lines 13-28 and Example 18).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1611

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

19. Claims 24, 25, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asrar et al., US Patent 6,992,047.

The claimed invention and the invention of Asrar et al. are recited above (see paragraph 18).

With respect to claims 24, 25, 55, and 56, Asrar et al. differ from the claimed invention because it does not specifically teach the acetanilide alachlor as the first agricultural active in the core material.

However, Asrar et al. does teach that chloroacetamides, such as alachlor, may be used with the first agricultural active in the core material of the microcapsule (see col. 22, lines 59-60).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use form a microcapsule comprising alachlor in the core material and an agricultural formulation therewith, with a reasonable expectation of success.

Art Unit: 1611

One skilled in the art would have been motivated to selectalachlor from the list of known agricultural actives found in Asrar et al. in order to form the pesticidal material and corresponding agricultural formulation of the claimed invention comprisingalachlor in the core material, with a reasonable expectation of success.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

20. Claims 1-5, 9-12, 17-36, 40-43, and 48-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seitz et al., US Patent 5,925,595.

The claimed invention is recited above (see paragraph 18).

Art Unit: 1611

Seitz et al. teaches a microencapsulated composition comprising a capsule wall that comprises the polymerization product of a triisocyanate, an aliphatic diisocyanate, and a polyamine, and an internal phase that comprises a first core chemical and a second core chemical (see claim 36). The triisocyanate Desmodur N3200 (the trifunctional biuret adduct of hexamethylene diisocyanate), the polyamine triethylene tetramine, and the core chemical alachlor are exemplified (see Examples 1-4).

Seitz et al. differ from the claimed invention because it does not teach that a polyoxypropylene triamine is used with the polyisocyanates and triethylene tetramine to form the shell.

However, Seitz et al. do teach that polyoxypropylene triamine is "expected to function adequately" in the formation of the microencapsulated composition (col. 8, lines 1-5).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to form the microencapsulated composition by the polymerization of polyisocyanate, triethylene tetramine, and polyoxypropylene triamine according to the claimed invention, with a reasonable expectation of success.

It is prima facie obvious to combine two compositions, each of which is taught by the prior art, to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. See MPEP 2144.06. Since both triethylene tetramine and polyoxypropylene triamine would be expected to "function adequately" in the composition of Seitz et al., it would have been prima facie obvious to use both polyamines in the polymerization with the polyisocyanates in order to form the microencapsulated composition, with a reasonable expectation of success.

Art Unit: 1611

With respect to the agricultural formulation comprising a dispersion of microcapsules in an aqueous phase (claims 32-36, 40-43, and 48-69), Seitz et al. teach that an aqueous liquid is added to the combination of isocyanate and core chemical to form an oil-in-water emulsion before reacting the emulsion with a polyamine to form microcapsules which encapsulate the water-immiscible core chemical (see abstract). Therefore, the resultant microcapsules are dispersed in an aqueous liquid.

With respect to claims 2 and 33, the polyamines of Seitz et al. described above are not hydrolysis products of the polyisocyanate.

With respect to claims 3-5 and 34-36, the properties of predetermined and greater permeabilities would be present in the microcapsule and formulations of Seitz et al., given the fact that the microcapsule shell of Seitz et al. can be formed from the same components as those taught in the claimed invention.

With respect to claims 9, 22, 40, and 53, the properties relating to solubility would be present in the microcapsule and formulations of Seitz et al., given the fact that the microcapsule shell of Seitz et al. can be formed from the same components as those taught in the claimed invention.

With respect to claims 10-12, 17-18, 41-43, and 48-49, Seitz et al. teach that both triethylene tetramine and polyoxypropylene triamine are “expected to function adequately” in the microcapsule composition (col. 8, lines 1-5).

With respect to claims 19, 20, 50, and 51, Seitz et al. teach the use of Desmodur N3200 (the trifunctional biuret adduct of hexamethylene diisocyanate) as the triisocyanate (e.g., see Examples 1-4).

Art Unit: 1611

With respect to claims 21 and 52, the property of being "substantially non-porous" would be present in the shell of Seitz et al., given the fact that the microcapsule shell of Seitz et al. can be formed from the same components as those taught in the claimed invention.

With respect to claims 23-25 and 54-56, Seitz et al. teach that herbicides, such as the acetanilide alachlor, are particularly preferred core materials (col. 8, lines 20-22).

With respect to claims 26 and 57, Seitz et al. teach that "in one preferred embodiment, the core contains both a herbicide and a safener" (col. 8, lines 26-27).

With respect to claims 27-29 and 58-60, Seitz et al. teach that the core chemical can optionally have combined with it a hydrophobic diluent (col. 3, lines 53-54). Seitz et al. further teach that the chemical nature and the amount of core diluent used determines its effect on the release, stating that a poor solvent will decrease the release, and a good solvent will accelerate the release (col. 5, lines 29-37). Therefore, the addition of the diluent may affect the solubility parameters of the core material as disclosed in the claimed invention.

With respect to claims 30 and 61, Seitz et al. teach a wall to core ratio of 8% (e.g., see Examples 13 and 14); this is encompassed by Applicant's shell to core ratio of less than 33%.

With respect to claims 31, 62, 65, and 68, Seitz et al. teach a wall to core ratio of 8%, and an average size of 3 microns (Examples 13 and 14). Based on these measurements, the microcapsule would have a mass to volume ratio and a volumetric diameter distribution within the measurements of the claimed invention.

With respect to claim 63, the property of the viscosity of the dispersion of Seitz et al. would necessarily be encompassed by the viscosity ranges of the formulation of the claimed

Art Unit: 1611

invention, given the fact that the size and weight of the shell and core of Seitz et al. are encompassed within the size and weight ranges of the claimed invention.

With respect to claim 64, Seitz et al. teach that the capsules have a particle size ranging from 2.2 to 4.5 microns (see Examples); this is encompassed by Applicant's range of 2 to 8 microns.

With respect to claim 66, Seitz et al. teach in Example 1 that the weight of the core and shell is 408.9 grams, and the total weight is 732.7 grams; therefore the weight percent of the capsule is 56% (see Example 1); this is encompassed by Applicant's range of less than 65 weight percent microcapsules.

With respect to claim 67, Seitz et al. teach that a preservative may be added to the formulation (col. 9, lines 29-30).

With respect to claim 69, Seitz et al. applying the formulation to agricultural fields of rox orange sorghum and barnyardgrass (e.g., see Example 15, column 13) and Dekalb corn hybrids (e.g., see Example 21, column 21).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA FRAZIER whose telephone number is (571)270-3496. The examiner can normally be reached on Monday-Thursday 9am-4pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571)272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BSF

/Sharmila Gollamudi Landau/

Primary Examiner, Art Unit 1611